

Notice of Allowability

Application No.

09/873,730

Examiner

HUNG Q. PHAM

Applicant(s)

NEUFELD ET AL.

Art Unit

2168

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 07/12/06.
2. ☒ The allowed claim(s) is/are 54-60,62,64-69,71-77,79 and 81-86.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date 09/26/06.
7. ☒ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____



TIM VO
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100

EXAMINER'S AMENDMENT

- An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

- Authorization for this examiner's amendment was given in a telephone interview with applicants' representative, Kevin G. Shao, on 09/26/2006.

- In the Claims 07/12/2006, please:
CANCEL claims 61, 63, 70, 78, 80 and 87.
REPLACE claims 54-60, 62, 64-69, 71-77, 79 and 81-86 by a clean version (without underline and cross mark) as below:

Claim 54. A computer implemented method performed by a network element, the method comprising:
receiving at a configuration manager of the network element a request from a user via a command line interface (CLI) of the network element for accessing one or more records of a database that is used to configure operations of the network element, wherein the CLI is one of a plurality of CLI interfaces provided by the network element to substantially concurrently access the database,
wherein in response to the request,
the configuration manager spawns a session thread to associate the CLI with the configuration manager, wherein the session thread is used by the CLI to communicate messages with the configuration manager;
the CLI sends a message to the spawned session thread indicating starting of a transaction;
the spawned session thread requests a transaction ID;
the configuration manager returns the requested transaction ID to the spawned session thread and sets the spawned session thread to an in-transaction state;
receiving from the CLI a configuration CLI operation;
performing a syntax verification of the received configuration CLI operation;
sending a message includes a value identifying a component manager to the spawned session thread;
for the received configuration CLI operation, the configuration manager:

invoking the identified component manager, the invoked component manager is associated with the received configuration CLI operation to process the received configuration CLI operation into one or more database operations;

recording the one or more database operations in a transaction log separated from the database without accessing the database until a commit command is received from the user via the CLI of the network element; and

in response to the commit command from the CLI indicating that the user has committed to the one or more database operations, transmitting the recorded one or more database operations from the transaction log to the database;

performing the recorded one or more operations within the database in response to receiving the recorded database operations from the transaction log, wherein the recorded one or more operations comprising read or write operations.

Claim 55. *The method of claim 54, wherein content of the transaction log is maintained in a persistent memory after the network element is powered down or rebooted.*

Claim 56. *The method of claim 54, further comprising prior to recording the one or more database operations in the transaction log,*

acquiring a lock for locking the one or more records of the database associated with the request to prevent other users from accessing the one or more records of the database.

Claim 57. *The method of claim 56, further comprising:*

receiving further modification of configuration from the user prior to the commit command; and

storing the modification in the transaction log without accessing the database until the commit command is received from the user upon which the modification of the configuration is committed from the transaction log to the locked one or more records of the database.

Claim 58. *The method of claim 57, further comprising:*

receiving an abort command from the user via the CLI prior to receiving the commit command; and

in response to the abort command, removing the one or more database operations from the transaction log and releasing the acquired lock without accessing the database.

Claim 59. *The method of claim 58, wherein after performing the removing and releasing in response to the abort command, the one or more records of the database remains substantially identical with respect to the one or more records prior to receiving the request.*

Claim 60. *The method of claim 56, further comprising:*

indicating the spawned session thread is in a committing state while committing the one or more database operations.

Claim 61. (Canceled)

Claim 62. *The method of claim 54 further comprising:*

the configuration manager initially configuring the network element during an initialization period of the network element by initiating an initialization transaction, including:

a process manager starting a configuration process by sending a message to the configuration manager requesting the initialization transaction;

obtaining a lock on the one or more records of the database, the configuration process reading configuration operations from a configuration file and sending each of the configuration operations to the spawned session thread using the transaction ID while the database is locked.

Claim 63. (Canceled)

Claim 64. *The method of claim 54, further comprising:*

determining whether the received configuration CLI operation is one of a commit command and an abort command;

if the received configuration CLI operation is not one of the commit and abort commands, the invoked component manager performing semantic verification of the received configuration CLI operation and rejecting the received configuration CLI operation if the received configuration CLI operation does not pass the semantic verification,

if the received configuration CLI operation passes the semantic verification, the component manager processing the received configuration CLI operation into one or more database operations to be performed within the database.

Claim 65. *The method of claim 64, further comprising:*

the invoked component manager determining whether a lock contention exists;

if the lock contention exists, the invoked component manager notifying the configuration manager to block further CLI operations from the CLI;

in response to the notification, the invoked configuration manager notifying the CLI regarding the lock contention;

the CLI prompting the user to either to wait or abort the received configuration CLI operation;

in response to an abort command received from the user, the component manager aborts the received configuration CLI operation.

Claim 66. *The method of claim 65, further comprising:*

in response to a wait command received from the user, the invoked component manager continuing blocking the received configuration CLI operation;

the invoked component manager periodically checking whether the lock contention has been released;

if the lock contention has not been released, the invoked component manager determining whether a period of time associated with the wait command has expired;

if the wait command has expired, prompting the user for further instructions including whether the user wants to wait or abort.

Claim 67. *The method of claim 66, further comprising:*

if the received configuration CLI operation includes an abort command, the transaction corresponding to the abort command is aborted and the one or more database operations are removed from the transaction log;

if the received configuration CLI operation includes a commit command, the spawned session thread transitioning from the in-transaction state to an in-commit state;

marking the one or more database operations in the transaction log as committed;

determining whether a network resource process for processing the received configuration CLI operation has died;

if the network resource process has not died, committing the one or more database operations to the database via a backend procedure call;

changing the spawned session thread from the in-commit state to a not-in-state when the performing the recorded one or more operations is completed.

Claim 68. *The method of claim 67, further comprising:*

if the network resource process has died, determining whether a current database operation is associated with the network resource process;

if the current database operation is not associated with the network resource process, performing database record request and invoking a backend procedure call;

if the current database operation is not associated with the network resource process, performing database record request without invoking a backend procedure call.

Claim 69. *The method of claim 56, further comprising:*

determining whether the lock being acquired is unavailable;

notifying the user via the CLI that the lock is unavailable; and

prompting the user whether the user desires to wait or cancel the request.

Claim 70. (Canceled)

Claim 71. *A computer storage medium having executable code to perform a method of a network element, the method comprising:*

receiving at a configuration manager of the network element a request from a user via a command line interface (CLI) of the network element for accessing one or more records of a database that is used to configure operations of the network element, wherein the CLI is one of a plurality of CLI interfaces provided by the network element to substantially concurrently access the database,

wherein in response to the request,

the configuration manager spawns a session thread to associate the CLI with the configuration manager, wherein the session thread is used by the CLI to communicate messages with the configuration manager;

the CLI sends a message to the spawned session thread indicating starting of a transaction;

the spawned session thread requests a transaction ID;

the configuration manager returns the requested transaction ID to the spawned session thread and sets the spawned session thread to an in-transaction state;

receiving from the CLI a configuration CLI operation;

performing a syntax verification of the received configuration CLI operation;

sending a message includes a value identifying a component manager to the spawned session thread;

*for the received configuration CLI operation, the configuration manager:
invoking the identified component manager, the invoked component manager is associated with the received configuration CLI operation to process the received configuration CLI operation into one or more database operations;
recording the one or more database operations in a transaction log separated from the database without accessing the database until a commit command is received from the user via the CLI of the network element; and
in response to the commit command from the CLI indicating that the user has committed to the one or more database operations, transmitting the recorded one or more database operations from the transaction log to the database;
performing the recorded one or more operations within the database in response to receiving the recorded database operations from the transaction log, wherein the recorded one or more operations comprising read or write operations.*

Claim 72. The computer storage medium of claim 71, wherein content of the transaction log is maintained in a persistent memory after the network element is powered down or rebooted.

Claim 73. The computer storage medium of claim 71, wherein the method further comprising prior to recording the one or more database operations in the transaction log, acquiring a lock for locking the one or more records of the database associated with the request to prevent other users from accessing the one or more records of the database.

*Claim 74. The computer storage medium of claim 73, wherein the method further comprising:
receiving further modification of configuration from the user prior to the commit command; and
storing the modification in the transaction log without accessing the database until the commit command is received from the user upon which the modification of the configuration is committed from the transaction log to the locked one or more records of the database.*

*Claim 75. The computer storage medium of claim 74, wherein the method further comprising:
receiving an abort command from the user via the CLI prior to receiving the commit command; and
in response to the abort command, removing the one or more database operations from the transaction log and releasing the acquired lock without accessing the database.*

Claim 76. The computer storage medium of claim 75, wherein after performing the removing and releasing in response to the abort command, the one or more records of the database remains substantially identical with respect to the one or more records prior to receiving the request.

Claim 77. The computer storage medium of claim 73, wherein the method further comprising:

indicating the spawned session thread is in a committing state while committing the one or more database operations.

Claim 78. (Canceled)

Claim 79. *The computer storage medium of claim 71, wherein the method further comprising:*

the configuration manager initially configuring the network element during an initialization period of the network element by initiating an initialization transaction, including:

a process manager starting a configuration process by sending a message to the configuration manager requesting the initialization transaction;

obtaining a lock on the one or more records of the database, the configuration process reading configuration operations from a configuration file and sending each of the configuration operations to the spawned session thread using the transaction ID while the database is locked.

Claim 80. (Canceled)

Claim 81. *The computer storage medium of claim 71, wherein the method further comprising:*

determining whether the received configuration CLI operation is one of a commit command and an abort command;

if the received configuration CLI operation is not one of the commit and abort commands, the invoked component manager performing semantic verification of the received configuration CLI operation and rejecting the received configuration CLI operation if the received configuration CLI operation does not pass the semantic verification,

if the received configuration CLI operation passes the semantic verification, the component manager processing the received configuration CLI operation into one or more database operations to be performed within the database.

Claim 82. *The computer storage medium of claim 81, wherein the method further comprising:*

the invoked component manager determining whether a lock contention exists;

if the lock contention exists, the invoked component manager notifying the configuration manager to block further CLI operations from the CLI;

in response to the notification, the invoked configuration manager notifying the CLI regarding the lock contention;

the CLI prompting the user to either to wait or abort the received configuration CLI operation;

in response to an abort command received from the user, the component manager aborts the received configuration CLI operation.

Claim 83. *The computer storage medium of claim 82, wherein the method further comprising:*

in response to a wait command received from the user, the invoked component manager continuing blocking the received configuration CLI operation;
the invoked component manager periodically checking whether the lock contention has been released;
if the lock contention has not been released, the invoked component manager determining whether a period of time associated with the wait command has expired;
if the wait command has expired, prompting the user for further instructions including whether the user wants to wait or abort.

Claim 84. *The computer storage medium of claim 83, wherein the method further comprising:*

if the received configuration CLI operation includes an abort command, the transaction corresponding to the abort command is aborted and the one or more database operations are removed from the transaction log;
if the received configuration CLI operation includes a commit command, the spawned session thread transitioning from the in-transaction state to an in-commit state;
marking the one or more database operations in the transaction log as committed;
determining whether a network resource process for processing the received configuration CLI operation has died;
if the network resource process has not died, committing the one or more database operations to the database via a backend procedure call;
changing the spawned session thread from the in-commit state to a not-in-state when the performing the recorded one or more operations is completed.

Claim 85. *The computer storage medium of claim 84, wherein the method further comprising:*

if the network resource process has died, determining whether a current database operation is associated with the network resource process;
if the current database operation is not associated with the network resource process, performing database record request and invoking a backend procedure call;
if the current database operation is not associated with the network resource process, performing database record request without invoking a backend procedure call.

Claim 86. *The computer storage medium of claim 83, wherein the method further comprising:*

determining whether the lock being acquired is unavailable;
notifying the user via the CLI that the lock is unavailable; and
prompting the user whether the user desires to wait or cancel the request.

Claim 87. (Canceled)

Allowable Subject Matter

Claims 54-60, 62, 64-69, 71-77, 79 and 81-86 are allowed.

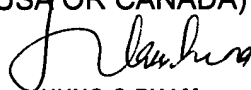
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- Any inquiry concerning this communication or earlier communications from the examiner should be directed to HUNG Q. PHAM whose telephone number is 571-272-4040.

The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, TIM T. VO can be reached on 571-272-3642. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

- Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



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